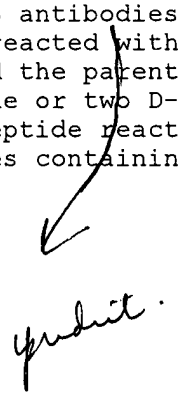
L4 ANSWER 2 OF 4 MEDLINE on STN
AN 2002462306 MEDLINE
DN 22209757 PubMed ID: 12220890
TI A retro-inverso peptide analogue of influenza virus hemagglutinin B-cell epitope 91-108 induces a strong mucosal and systemic immune response and confers protection in mice after intranasal immunization.
AU Ben-Yedidia Tamar; Beignon Anne-Sophie; Partidos Charalambos D; Muller Sylviane; Arnon Ruth
CS Department of Immunology, The Weizmann Institute of Science, P.O. Box 26, 76100, Rehovot, Israel.
SO MOLECULAR IMMUNOLOGY, (2002 Oct) 39 (5-6) 323-31.
Journal code: 7905289. ISSN: 0161-5890.
CY England: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200211
ED Entered STN: 20020911
Last Updated on STN: 20021213
Entered Medline: 20021104
AB In this study, a novel approach for the development of a peptide-based **vaccine** has been tested. We investigated the possibility of replacing an all-L amino acid peptide sequence corresponding to the protective B-cell epitope hemagglutinin (HA) 91-108 from influenza HA with a retro-inverso analogue encompassing this sequence. Retro-inverso peptides are composed of **D-amino acids** assembled in a reverse order from that of the parent L-sequence, thus maintaining the overall topology of the native sequence. This explains the observed antigenic cross-reactivity with anti-influenza virus antibodies. Mice immunized intranasally with the ovalbumin-conjugated retro-inverso analogue and cholera toxin as an adjuvant, produced strong systemic (serum IgG) and mucosal (lung IgA) antibody responses, and were protected against intranasal challenge with a lethal dose of influenza virus. The weight loss pattern in the protected group indicated that the **vaccinated** animals developed a disease of low severity resulting in a quick recovery. Furthermore, splenocytes of the immunized mice cultured in the presence of inactivated influenza virus, secreted high levels of IFN-gamma. The half-life of the retro-inverso analogue in the presence of lung homogenate proteases was at least 700 times greater than that of the parent L-peptide. These results demonstrate that peptidomimetic analogues with high resistance to proteolytic degradation are very effective **immunogens** when administered via the intranasal route, inducing protective immunity against a viral infection. This approach might be advantageous for **vaccine** development

L3 ANSWER 1 OF 1 MEDLINE on STN
AN 94075310 MEDLINE
DN 94075310 PubMed ID: 8253750
TI **Antigenicity** and **immunogenicity** of **modified synthetic peptides** containing D-amino acid residues. Antibodies to a D-enantiomer do recognize the parent L-hexapeptide and reciprocally.
AU Benkirane N; Friede M; Guichard G; Briand J P; Van Regenmortel M H; Muller S
CS Institut de Biologie Moleculaire et Cellulaire, UPR 9021 Centre National de la Recherche Scientifique, Strasbourg, France.
SO JOURNAL OF BIOLOGICAL CHEMISTRY, (1993 Dec 15) 268 (35) 26279-85. Journal code: 2985121R. ISSN: 0021-9258.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199401
ED Entered STN: 19940203
Last Updated on STN: 19970203
Entered Medline: 19940113
AB The effect of introducing D-amino acid residues in an hexapeptide was examined both at the antigenic and immunogenic levels. A series of D-analogues of the model peptide of sequence IRGERA corresponding to the COOH-terminal residues 130-135 of histone H3 were produced. Four analogues contained a single change of an L-residue by the corresponding enantiomer, one peptide contained two D-residues and another one contained only D-residues (D-enantiomer). A peptide analogue was also synthesized in which the 2 Arg residues were replaced by Lys residues. The parent peptide and peptide analogues were injected into mice after covalent coupling to small unilamellar liposomes containing monophosphoryl lipid A as adjuvant. The substitution of L-Arg131 to Lys or D-Arg was found to change neither the antigenic nor immunogenic properties of the resulting peptides. In contrast, the substitution of Glu133, Arg134, and Ala135 by the respective enantiomers drastically altered the **antigenicity** of the modified peptides. Each of the six D-analogues induced an immune response with an unusually high level of IgG3 antibodies. The D-enantiomer produced IgG3 antibodies which reacted with the homologous peptide as well as with the all L-peptide and the parent protein H3 in solution but not with analogues containing one or two D-residues only. IgG3 antibodies produced against the all L-peptide reacted with the free all D-peptide but not with the other analogues containing D-residues in position 133, 134, and 135.



L1 ANSWER 1 OF 1 MEDLINE on STN
AN 97337831 MEDLINE
DN 97337831 PubMed ID: 9194525
TI **Different roles** of **D-amino acids** in **immune phenomena**.
AU Sela M; Zisman E
CS Department of Immunology, The Weizmann Institute of Science, Rehovot, Israel.
SO FASEB JOURNAL, (1997 May) 11 (6) 449-56. Ref: 79
Journal code: 8804484. ISSN: 0892-6638.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199707
ED Entered STN: 19970721
Last Updated on STN: 19970721
Entered Medline: 19970703
AB Peptides and polypeptides either fully or partially built of D-amino acids interest researchers because of their advantages over all L peptides and polypeptides. In exploiting these characteristics, one should realize that the resulting molecules are nonetheless not inert, but rather may induce a unique immune response, which is hardly cross-reactive with the L-enantiomer. Moreover, cross-reaction between the L- and the D-sequences is limited also at the T cell level, probably due to different sterical conformations of the MHC-antigen-T cell receptor complexes formed. Polypeptides built exclusively of D-amino acids lead to antibody formation only at a relatively low concentration, otherwise they provoke immunological paralysis. The specificity of the immune response toward peptides containing D-amino acid residues is exquisite, and often D-amino acids play a dominant role in defining the specificity. Polypeptides composed exclusively of D-amino acids are thymus-independent antigens. Nevertheless, it is possible to prepare against them highly specific T cell hybridomas. In future plans for synthetic vaccines against infectious or autoimmune diseases, the inclusion of D-amino acids may be an advantage in terms of both specificity and efficacy, the latter because of longer persistence in an undigested form because they resist enzymatic degradation.

L2 ANSWER 1 OF 1 MEDLINE on STN
AN 1998386733 MEDLINE
DN 98386733 PubMed ID: 9720264
TI **D-peptides** as **immunogens** and **diagnostic** reagents.
AU Van Regenmortel M H; Muller S
CS UPR 9021, IBMC, CNRS, Strasbourg, France.
SO CURRENT OPINION IN BIOTECHNOLOGY, (1998 Aug) 9 (4) 377-82. Ref: 37
Journal code: 9100492. ISSN: 0958-1669.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199809
ED Entered STN: 19980925
Last Updated on STN: 19980925
Entered Medline: 19980914
AB There has been a regain of interest in the immunological applications of peptides assembled partly or totally from D-amino acids. Such peptides are much more stable to proteolysis than natural L-peptides and they have considerable potential as synthetic vaccines and as immunomodulators in T-cell responses. Retro-inverso, also called retro-all-D or retroenantio, peptide analogues that closely mimic the structure of protein antigens are obtained by assembling amino acid residues in the reverse order from that in the parent peptides and replacing L- by D-amino acids. Retro-all-D peptides corresponding to an immunodominant epitope of foot-and-mouth disease virus have been shown to elicit high levels of neutralizing antibodies in experimental animals. Certain retro-all-D peptide analogues of T-cell epitopes are able to bind to MHC class II molecules and may either lead to T-cell activation or inhibit deleterious T-cell responses.

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